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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

		Date of mailing (day/month/year) 17 OCT 2005
Applicant's or agent's file reference 14986-1 PCT		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/US05/11021	International filing date (day/month/year) 01 April 2005 (01.04.2005)	Priority date (day/month/year) 02 April 2004 (02.04.2004)
International Patent Classification (IPC) or both national classification and IPC IPC(7): G02B 6/00 and US Cl.: 385/12,52,53,147		
Applicant EKSIGENT TECHNOLOGIES LLP		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

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Feb. 2, 2006 ✓

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Juliana Kang Telephone No. (571)272-2348
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US05/11021

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- a sequence listing
 table(s) related to the sequence listing

b. format of material

- in written format
 in computer readable form

c. time of filing/furnishing

- contained in international application as filed.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority for the purposes of search.

3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US05/11021

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- the entire international application
 claims Nos. 4-14, 17 and 18

because:

- the said international application, or the said claim Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4-14, 17 and 18 are so unclear that no meaningful opinion could be formed (*specify*):

Claims 17 and 18 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims are indefinite for the following reason(s): claim 17 recites that a microfluidic substrate has two parallel side faces each of which includes a groove and the groove(s) being separated from each other and lying in the same plane. It appears that it is impossible to have grooves that are lying in the same plane when they are on two parallel side faces.

Claims 4-14 are objected to because they are improper multiple dependent claims under PCT Rule 6.4(a).

- the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for said claims Nos. _____

the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form	<input type="checkbox"/> has not been furnished <input type="checkbox"/> does not comply with the standard
the computer readable form	<input type="checkbox"/> has not been furnished <input type="checkbox"/> does not comply with the standard

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

See Supplemental Box for further details.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/US05/11021

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-3 _____	YES
	Claims 15, 16 _____	NO

Inventive step (IS)	Claims 1-3 _____	YES
	Claims 15, 16 _____	NO

Industrial applicability (IA)	Claims 1-16 _____	YES
	Claims 17, 18 _____	NO

2. Citations and explanations:

Claims 15 and 16 lack novelty under PCT Article 33(2) as being anticipated by Jovanovich et al (US 2004/0017981 A1).

Regarding claim 15, Jovanovich et al disclose a junction comprising an elongate component (pins) which passes through the interface between two substrates (1081, 1083), at least one of the substrate being a microfluidic substrate, and the elongate component being surrounded at the interface by a gasket (1082) (see paragraph [0154]).

Regarding claim 16, Jovanovich et al disclose a method of making a junction which comprises providing two substrates (1027, 1025), each of which has a pair of alignment features (sides that touches the tray [1091], pins [999]) thereon, one of which has an elongate component (999) extending from it and the other of which has a conduit within it (there has be conduits for the pins to be inserted on the other substrate); placing the substrates on an alignment jig (1091) with the alignment features (side walls) in contact with the alignment jig; and slicing one or both of the substrates along the alignment jig so that the elongate component enters the conduit (see Fig. 25).

Claims 1-3 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the claimed fluid-tight junction with two substrates wherein both substrates have two alignment features that are on different faces of the substrate in combination with the other claimed features as set forth in claim 1.

Claims 1-16 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

WRITTEN OPINION OF THE
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International application No.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 16-18 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims are indefinite for the following reason(s): claims 16 and 17 recites the limitation "preferably". A broad range or limitation followed by linking term "preferably" and a narrow range or limitation within the broad range or limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired.

Claims 17 recites the limitation "two parallel side faces each of which includes a groove, the grooves being separated from each other by a constant distance and preferably lying in the same plane". It does not appear that this structure is possible because grooves on the parallel side faces can't lie in the same plane.